

In the claims:

1. A silica comprising:

(a) an aggregate of primary particles, said primary particles having an average diameter of at least seven (7) nanometers, wherein said aggregate has an aggregate size of less than one (1) micron; and

(b) a hydroxyl content of at least seven (7) hydroxyl groups per nanometer squared.

2. The silica of Claim 1 wherein said average diameter of said primary particles is at least ten (10) nanometers.

3. The silica of Claim 1 wherein said average diameter of said primary particles is at least fifteen (15) nanometers.

4. The silica of Claim 1 wherein said hydroxyl content is at least ten (10) hydroxyl groups per nanometer squared.

5. The silica of Claim 1 wherein said hydroxyl content is at least fifteen (15) hydroxyl groups per nanometer squared.

6. The silica of Claim 1 wherein said aggregate size is less than 0.5 micron.

7. A slurry composition comprising a silica which comprises:

(a) an aggregate of primary particles, said primary particles having an average diameter of at least seven (7) nanometers, wherein said aggregate has an aggregate size of less than one (1) micron;

(b) a hydroxyl content of at least seven (7) hydroxyl groups per nanometer squared; and

(c) a liquid.

8. The silica of Claim 7 wherein said average diameter of said primary particles is at least ten (10) nanometers.

9. The silica of Claim 7 wherein said average diameter of said primary particles is at least fifteen (15) nanometers.

10. The silica of Claim 7 wherein said hydroxyl content is at least ten (10) hydroxyl groups per nanometer squared.

11. The silica of Claim 7 wherein said hydroxyl content is at least fifteen (15) hydroxyl groups per nanometer squared.

12. A method of chemical mechanical planarization a substrate comprising the step of applying a slurry composition which comprises a silica, said silica comprising:

(a) an aggregate of primary particles, said primary particles having an average diameter of at least seven (7) nanometers, wherein said aggregate has an aggregate size of less than one (1) micron; and

(b) a hydroxyl content of at least seven (7) hydroxyl groups per nanometer squared.

13. The method of Claim 12 wherein said chemical mechanical planarization comprises removing from said substrate materials selected from the group consisting of metals, metal oxides and polymer dielectrics.

14. The method of Claim 12 wherein said chemical mechanical planarization comprises removing from said substrate elements selected from the group consisting of copper, tantalum, tungsten and aluminum.

15. The method of Claim 12 wherein said chemical mechanical planarization comprises removing silicon dioxide from said substrate.

16. The method of Claim 12 wherein said chemical mechanical planarization comprises removing copper and tantalum from said substrate.

17. The method of Claim 16 wherein said removal of tantalum is at a rate which is equal to or greater than said removal of copper.

18. A slurry composition for chemical mechanical planarization of a substrate comprising a silica comprising an aggregate of primary particles, wherein said silica has a BET to CTAB ratio of greater than 1.

19. The slurry composition of Claim 18 wherein said aggregate of said silica has an aggregate size of less than one (1) micron.

20. The slurry composition of Claim 18 wherein said primary particles of said silica have an average diameter of greater than seven (7) nanometers.

21. The slurry composition of Claim 18 wherein said silica has a hydroxyl content of greater than seven (7) hydroxyl groups per nanometer squared.

22. A slurry composition for chemical mechanical planarization of a substrate comprising a silica comprising an aggregate of primary particles, said aggregate having an aggregate size of less than one (1) micron, wherein said silica has an oil absorption value of at least 150 milliliters per 100 grams of silica.

23. The slurry composition of Claim 22 wherein said oil absorption value is at least 220 milliliters per 100 grams of silica.

24. The silica of Claim 1 wherein the said silica comprises a precipitated silica.

25. A precipitated silica comprising:

(a) an aggregate of primary particles, said primary particles having an average diameter of at least seven (7) nanometers, wherein said aggregate has an aggregate size of less than one (1) micron; and

(b) a hydroxyl content of at least seven (7) hydroxyl groups per nanometer squared.

26. The precipitated silica of Claim 25 wherein said average diameter of said primary particles is at least ten (10) nanometers.

27. The precipitated silica of Claim 25 wherein said average diameter of said primary particles is at least fifteen (15) nanometers.

28. The precipitated silica of Claim 25 wherein said hydroxyl content is at least ten (10) hydroxyl groups per nanometer squared.

29. The precipitated silica of Claim 25 wherein said hydroxyl content is at least fifteen (15) hydroxyl groups per nanometer squared.

30. The slurry composition of Claim 7 wherein said silica comprises a precipitated silica.

31. The slurry composition of Claim 7 wherein said slurry is applied to a substrate for chemical mechanical planarization of said substrate.

32. A slurry composition for chemical mechanical planarization of a substrate comprising a precipitated silica which comprises:

(a) an aggregate of primary particles, said primary particles having an average diameter of at least seven (7) nanometers, wherein said aggregate has an aggregate size of less than one (1) micron; and

(b) a hydroxyl content of at least seven (7) hydroxyl groups per nanometer squared.

33. The slurry composition of Claim 18 wherein said BET to CTAB ratio is at least 1.2 or greater.

34. A silica capable of being reduced to an aggregate size of less than one (1) micron by employing a wet milling process.

35. A precipitated silica capable of being reduced to an aggregate size of less than one (1) micron by employing a wet milling process.